Table 12. User Responses to "What do you like least about Internet CNN NEWSROOM?"

January	April
Pauses (50%)	Pauses (53%)
Not able to use it (15%)	Don't know how to use (13%)
Don't know how to use (10%)	Not enough content (13%)
Boring (10%)	Boring (7%)
No complaints (10%)	Does not always work (7%)
Not enough content (5%)	Worksheets (7%)
Cuts off end of story (5%)	Not used enough (7%)
Worksheets (5%)	Slow response (7%)

In the focus groups, students complained about the lack of performance in the system, particularly, the periodic pauses in the video playback and the improper segmentation of the video clips. However, students were willing to be patient with the technology and tolerate these technical glitches.

> It is slow at times. When it stops, it is in the middle of a sentence and you lose your whole train of thought. That's the only one little pet peeve I have with it. [The only problem I have is the] stopping, but that's not really that bad. That's it and that's not even a big thing.
>
> When you play the next report, then you get the end of the report before. I think it always happens. Then when you do the next report, it shows a little tail end part.

The teacher also cited an increased exposure to the Internet due to her experience with Internet CNN NEWSROOM:

> I am finding that by using Internet CNN NEWSROOM I have become familiar with the Internet. This is a gateway for my using it more.

Students said that they saw benefits of using the Internet in other subjects in school:

> I think we could use [the Internet] in other classes. Now we're using it instead of history books. We never did it before in history, but now we're used to it and I think if we started in the other classes, we would get used to it. If they could find programs to tie in, I think it could help.
>
> The Internet would be useful in science, debate, psychology, business, art, languages, accounting, or computers [classes].

Students debated whether the computer was a good substitute for books in school:

> I like [computers]. It's easier to get your information. You can highlight what you need and forget the rest. So books, it's like you have to read everything.
>
> You can learn a lot from computers rather than from books, but I think books go more in depth than computers. Computers are good for visual, multimedia activities rather than written activities.
>
> I don't like computers, so I use books.
>
> If you know what's good for you, you'll use both books and the Internet.

Some students said that computers and the Internet did not provide enough quality information for school research. Students said that although they used the Internet in school, they used books when they wanted to "really learn" about a subject.

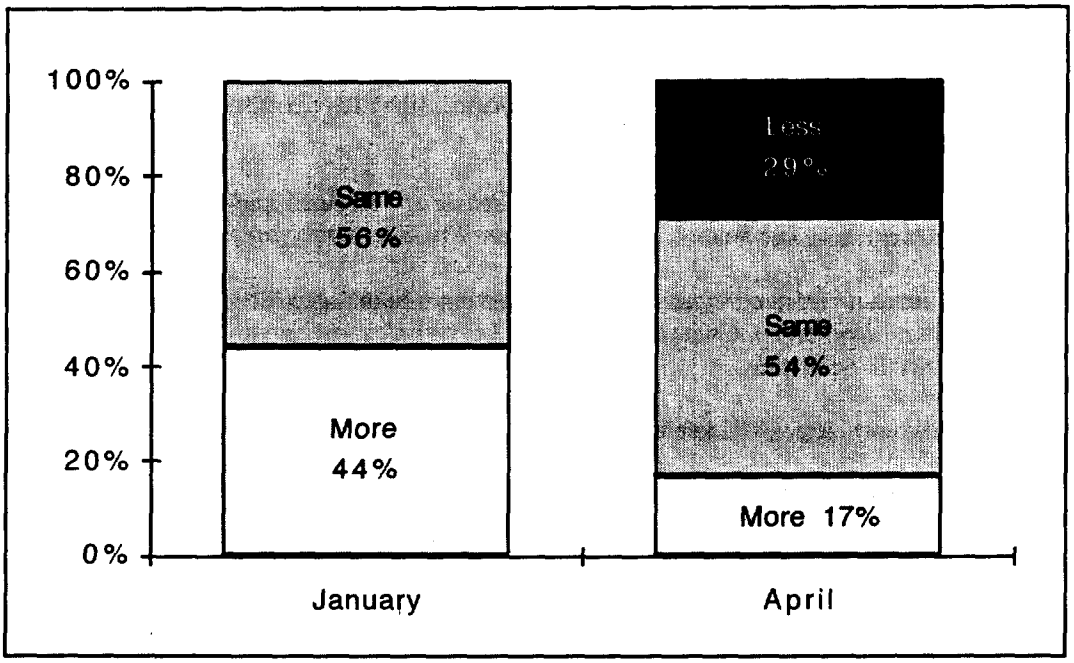
3.5.2 Observed Novelty Effect

Survey data over the course of the study indicates a substantial novelty effect among users of Internet CNN NEWSROOM. While in the first half of the study users were enthusiastic about the use of the medium for learning current events, by the end of the study student enthusiasm waned considerably.

As illustrated in Figure 13, students' desire to use Internet CNN NEWSROOM in class dwindled during the study. Students were asked whether they would like the teacher to use Internet CNN NEWSROOM more often, less often or as often as is currently used. At the

study's midpoint in January, 44% of the students desired to use it more often, with the remainder desiring the same level of usage. However, by the end of the study in April, 29% of the students desired that the teacher use Internet CNN NEWSROOM less often. Only 17% desired to use it more often.

Figure 13. Desired Frequency of Internet CNN NEWSROOM Usage in the Classroom

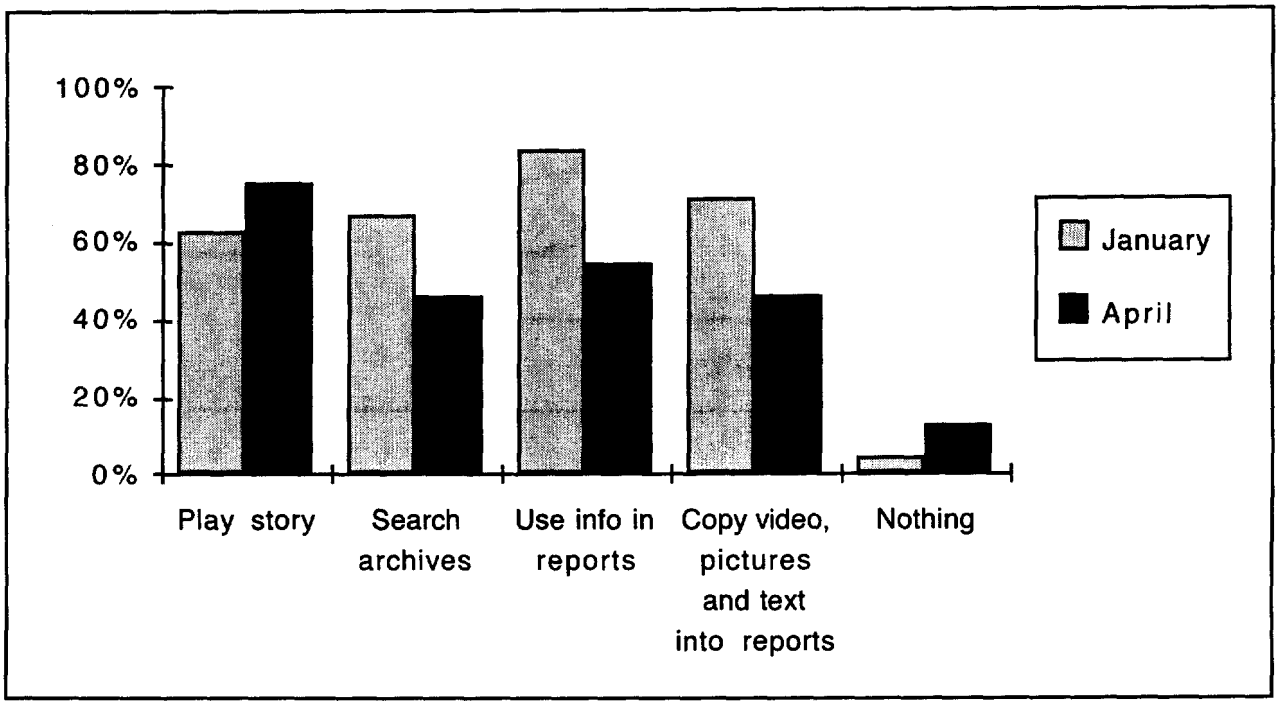


The decreased interest in Internet CNN NEWSROOM over time may be explained by a novelty effect, in which initial excitement over a new product declines after its novelty wears off. However, other factors may also account for some of the decreased interest in Internet CNN NEWSROOM. As described above, many students were critical of the product's interface, technical glitches, and accompanying quizzes. Feedback collected in this study is expected to provide recommendations for future enhancements of the service to better meet user needs.

Students' waning interest in Internet CNN NEWSROOM is confirmed by their responses to another survey question probing interest in Internet CNN NEWSROOM features. Students were asked whether they would like to know how to perform certain tasks using Internet CNN

NEWSROOM. For three out of the four possible tasks, student desire to perform the tasks dropped from January to April. As illustrated in Figure 14, student interest in searching, using information, and copying information from Internet CNN NEWSROOM declined from January to April. Interest in playing a video segment story increased, albeit slightly, over the course of the study.

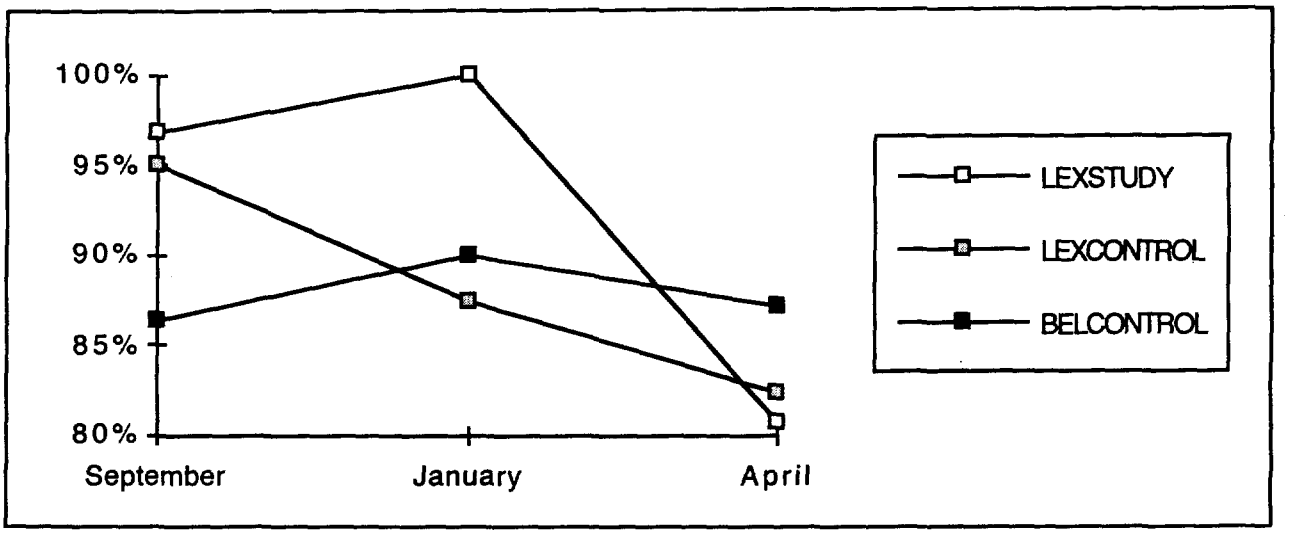
Figure 14. Interest in Using Internet CNN NEWSROOM Features



The novelty effect is also apparent in the attitudes of students towards the use of computers in general. As illustrated in Figure 15, the percent of students agreeing with the statement that "computers are good for work" dropped by a greater amount in the LEXSTUDY group than in either of the control groups. While in January the LEXSTUDY group universally agreed with the statement, presumably because of their excitement about the technology, by April the excitement had worn off and 19% no longer agreed. The changes were not nearly as drastic within the two control groups. LEXCONTROL students also demonstrated a drop in their favorable view of computers for work, but the decline was steady throughout the study. The

fact that both Lexington groups displayed a decline indicates that students in the technology-rich Lexington High School may be turned off to the technology if they do not see it is a useful tool in their studies.

Figure 15. Percent of Students Stating Computers are Good for Work

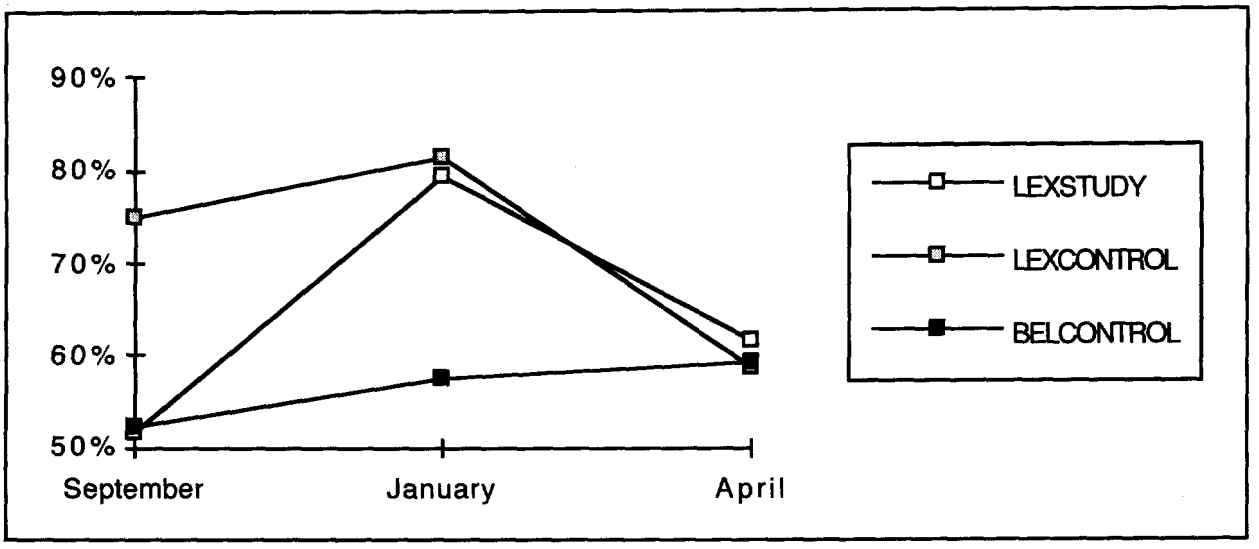


Alternatively, the decline in the number of LEXSTUDY students agreeing that computers are good for work may be attributed to a growing frustration with the prototype system. After extensive use of Internet CNN NEWSROOM, some students may come to reject computers as useful for work because of the prototype's flawed user-interface and inconsistent performance. At the beginning of the study, students were able to overlook the problems and focus on the benefits it provided them in their work. However, by the end of the study in April, an increasing number of students may have channeled their frustrations with the system into a lower opinion of the utility of computers for work.

The novelty effect has had an impact not only in student attitudes towards technology but also in student use of technology. As illustrated in Figure 16, students in LEXSTUDY increased their usage of computers significantly in the first half of the survey. The percentage of students using computers at least a few times a week increased from 52% in September to 80% in January.

However, by April the percentage dropped down to 62%. Students in LEXCONTROL also displayed a sharp drop in computer usage during the course of the year (from 75% at the beginning of the study to 58% at the end). Only the Belmont students showed increased usage throughout the study.

Figure 16. Percent of Students Using Computers at Least a Few Times a Week



Two different explanations account for the difference in trends among the three groups. The first explanation suggests that students in Lexington had over-exposure to computers without quality applications. The LEXSTUDY students turned to computers often during their initial excitement with Internet CNN NEWSROOM. However, as soon as the excitement abated, students began to shun computers. The LEXCONTROL group did not have the initial increase because it did not experience the initial excitement of Internet CNN NEWSROOM. But the group did suffer the same computer burn-out after overexposure during the course of the year.

The second explanation suggests that the students in both Lexington groups became more aware of their relative familiarity with the technology over the course of the year. In January, many Lexington students were still new to the technology and may have included any incidental or superficial contact with computers as part of their regular weekly computer usage. By April,

these students were more knowledgeable about computers and excluded any superficial use from their self-assessment of weekly usage rates.

3.5.3 Effect on Technical Proficiency

Students in the study and control groups increased their self-rated proficiency with computers and the Internet in the study period. As illustrated in Figure 17 and Figure 18, the percentage of students claiming "a lot" or "some" experience with computers and the Internet increased slowly from the beginning of the study.

Figure 17. Percent of Students Claiming "a Lot" or "Some" Experience with Computers

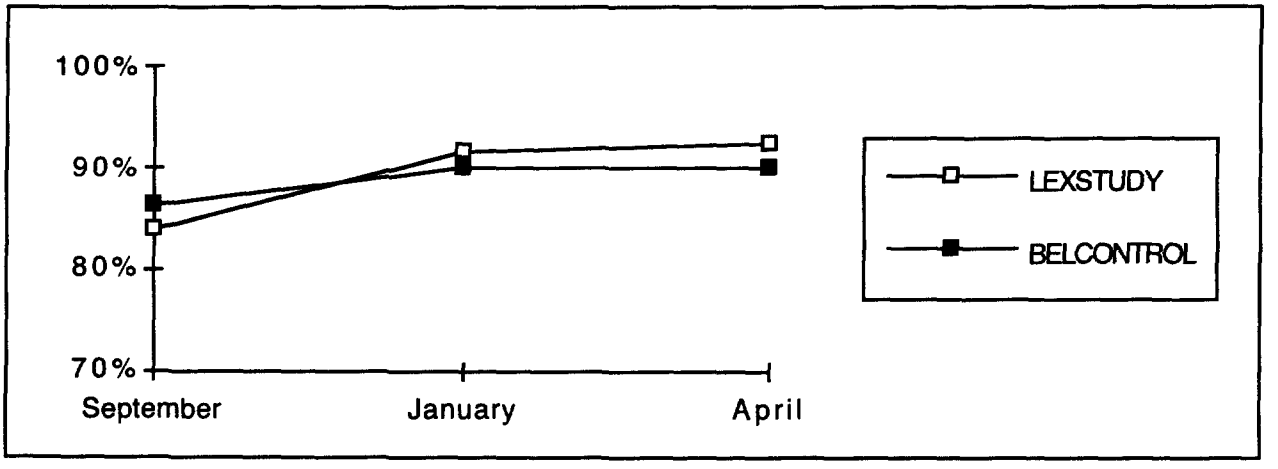
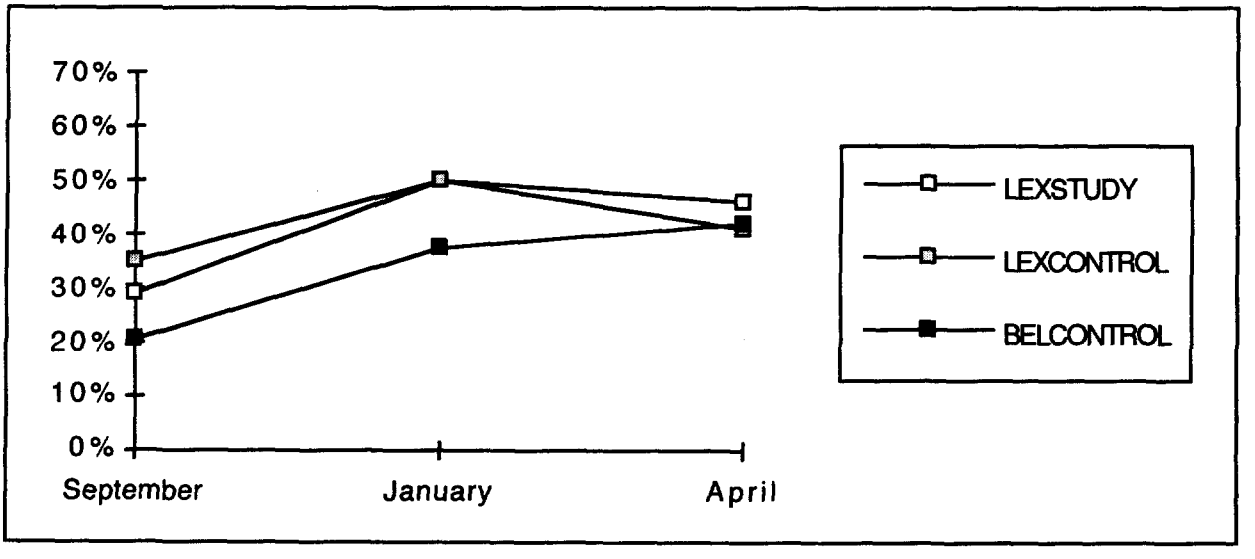
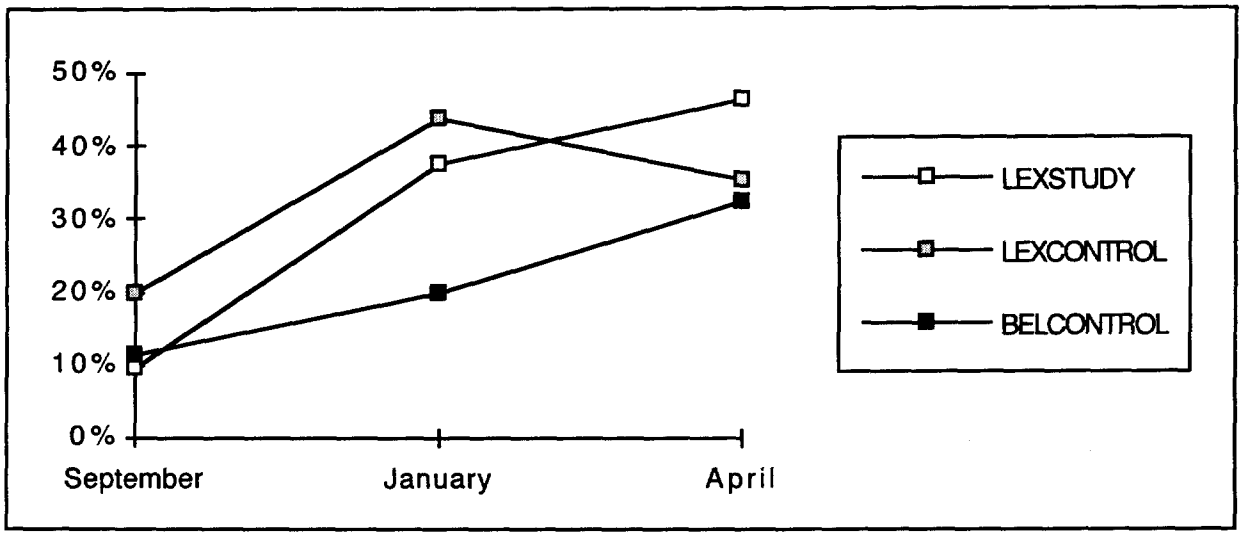


Figure 18. Percent of Students Claiming "a Lot" or "Some" Experience with the Internet



However, student experience with the Web increased at a much higher level in the LEXSTUDY group compared to the control groups. As illustrated in Figure 19, at the beginning of the study, the LEXSTUDY group had the smallest fraction of students (9% compared to 20% in LEXCONTROL and 12% in BELCONTROL) claiming a lot or some Web experience. By the end of the study, the LEXSTUDY students, having used Internet CNN NEWSROOM as part of their regular instruction, claimed the greatest experience with the Web (46% compared to 36% in LEXCONTROL and 32% in BELCONTROL).

Figure 19. Percent of Students Claiming "a Lot" or "Some" Experience with the Web



These results indicate that all students at Lexington increased their experience with the Web, but the students using Internet CNN NEWSROOM showed the greatest improvement. While these results do not indicate greater learning using the Web, they do indicate that students exposed to good Web-based applications receive greater experience with the technology.

3.5.4 Shift in View of Function of Computers

The study indicates that there is a fundamental shift in the primary use of computers by students. Students who had not used the Internet or on-line services viewed computers as having three functions – word processing, typing instruction, and game playing. On the other

hand, those with more computer experience emphasized other, more powerful, uses for computers including information retrieval and communication. Student comments from the focus groups exposed the disparity between these two groups. Students without much use of computers made comments similar to these:

> [The computer is] just something that I use to type up a paper and no more than that.
>
> I have a computer [at home], but I don't really use it. I use it to type my papers.
>
> [Before high school,] all we used computers for was typing and games. We were trying to learn how to use computers, how to write papers, how to correct, how to use the fonts, and stuff like that.

On the other hand, students with more experience with computer networking had a much different impression of uses for computers. These students said that the Internet was vital for their work and research at school:

> Because all we have learned before now is how to make papers on the computer so it looks nice. That's about it. Now we know we're able to get a lot of information [off of computers].
>
> I think it is very useful having all these resources, literally the whole world at a key board.
>
> I've [used the Internet] at school. I've done it at home and at friends' homes, and it's really a great resource to use.

These experienced computer users acknowledged that before they used computers much, they saw the role of computers in the same way as the less experienced group – primarily for word processing and typing instruction.

Interviews with the teacher confirmed this trend that students were viewing computers and the Internet as serious research tools rather than game or typing machines:

> I have noticed now that when the students go into the Internet, they are going more for the news, research and so forth, rather than seeing the computers in the room and this is the place where we can have fun and play games. I'm impressed with where they're

> going on the Internet. I think that Internet CNN NEWSROOM has opened up a whole new window for them. That this is not just a game machine and that they can find out about the world around them. And you see I think what they see on CNN gives them access to the world and the issues in the world today. And then I think they want to look more into these issues. I'm just impressed with how they use it in the classroom now. They're not going into games and so forth – they're looking at issues.

Some students said it was easier to access information over the Internet than in a library:

> I like the Internet. I think it's much more convenient to get access to information over the Internet than by going down to the main library in Boston. I think that it is so much easier and especially to use in your own home or like right here.
>
> It's easier to get [information off of the Internet because] instead of going through books and picking out little bits of information. It's all right there.
>
> I want [a computer] because it's easier to [find information using the computer] than going to the library and going through books.

Other students said that the information they were seeking was available only over the Internet and not in the library:

> It's become very useful for stuff that I really can't find in a library.
>
> We wanted something on women's rights in Ghana and we couldn't find it in the school library. But a lot of other people have gotten information and put it on the Internet.
>
> Some things you're just not going to find in the library. So when there are things that are new subjects. Like Hubble – almost all of the books in the library are from the seventies or earlier and you won't find anything about Hubble in there because it's not updated. But on the Internet you can find lots of information about Hubble.
>
> Now we have projects on Africa, and I'm doing African music, art and masks and stuff, and we can look up things that were in the news recently, just on the Internet. It's much easier to do that instead of looking in books.

However, students feared overuse of computers and the Internet in school:

> There is so much in there and after a while, I just don't like going for long periods because it bothers my eyes. And I get sick of interaction with the computer. There is no personal level of it.

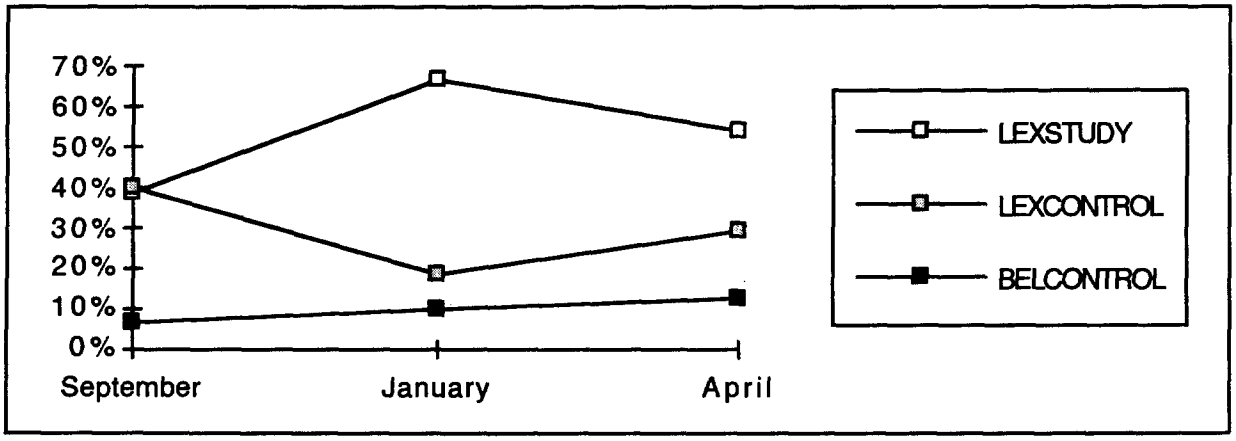
> Getting carpal tunnel syndrome before you're able to drive would be a real bummer.

Students also had a great fear of getting into trouble by stumbling upon inappropriate or restricted government information on the Internet:

> In order for us to know, we have to research. But when we research, and research too hard, we get in trouble for finding out stuff other people don't want us to know about.
>
> You can't do this (browse information over the Internet) because you'll get, I don't know, arrested.

Based on the survey data, LEXSTUDY students have placed more importance than their counterparts on the use of computers for schools projects. Students in each class were asked to name the most important source of information for school projects. As illustrated in Figure 20, the percentage of LEXSTUDY students claiming computers as their most important information source for school projects increased from 39% in September to 54% in April. Similarly, the percentage of LEXSTUDY students using print materials (e.g. books, newspapers or magazines) as their primary information source decreased from 58% to 46% over the course of the study.

Figure 20. Percent of Students Identifying Computers as Most Important Information Source



The students in BELCONTROL did not migrate nearly as much from books to computers for their information in school projects. In September, 91% claimed books, newspapers, and magazines were most important, compared to 7% for computers. By April, the percentages changed only slightly to 87% for books, newspapers, and magazines, versus 13% for computers.

The students in LEXCONTROL showed a trend contrary to that found in the LEXSTUDY group. While the LEXSTUDY students placed more reliance on computers as the year progressed, the LEXCONTROL group placed less reliance on computers over the same period. At the beginning of the study the two Lexington group profile were similar (58% print, 39% computers in LEXSTUDY and 60% print, 40% computers in LEXCONTROL). However, during the study period, behavior among the two groups diverged. In January, only 19% of the LEXCONTROL students still claimed computers as their most important information source. In April the percentage increased to 29%, but still remained below the level at the start of the study. Apparently, the LEXSTUDY group, in using Internet CNN NEWSROOM, began to view computers as valuable for class work. The LEXCONTROL group, without access to Internet CNN NEWSROOM, was not able to find good information resources for school projects using computers. Greater reliance on Internet CNN NEWSROOM does not necessarily indicate that the product is effective in education. However, it does imply that the product will receive greater student acceptance if teachers choose to use it in the classroom.

The teacher confirmed that students were learning more using Internet CNN NEWSROOM than with other computing resources. She said that the plethora of information on Internet CNN NEWSROOM and the Internet forces students to read and understand the information they browse over the network. In contrast, students using CD-ROM encyclopedias or other computer resources were simply collecting information into school projects without first reading and understanding the material:

> I would say previously that they might go to the library and they might download something from the encyclopedia CD-ROM and they would run off 9,000 pages and then not read the material, and then put it all together and hand it in. Therefore what I have found that has been most useful, and I don't even think they realize it, is that they have to select what they are going to download. They are not going to download the whole thing, so they have to read or listen to the document , and then select what they would like to download and use in their project. They have to be selective. They have to go to [Internet] CNN [NEWSROOM] or other parts of the Internet, they have to go to the archives, they have to go use the technology we have available in the room, and then select what they want to include in their project.

Other metrics did not indicate any significant difference between the study and control groups. None of the groups showed a significant difference during the study in affinity for current events, attitude towards class, class participation or collaboration with other students.

3.6 SUMMARY

This chapter examined the benefits of educational technology in K-12 schools. Education stakeholders can reap a variety of benefits from the use of technology and networking. Schools with more advanced networking infrastructure can more easily utilize high bandwidth educational services over the Internet.

Internet CNN NEWSROOM, a new networked multimedia information service, created greater enthusiasm among students because it provided them with direct access to information. Students using the product have placed more importance than their counterparts on the use of computers for schools projects. These students also showed greater use of computers and networks for school work and more experience with the Web than students without access to Internet CNN NEWSROOM.

While students using Internet CNN NEWSROOM placed more reliance on computers as the year progressed, students using technology but not Internet CNN NEWSROOM placed less

reliance on computers over the same period. The former group, in using content-rich Internet CNN NEWSROOM, began to view computers as valuable for class work. The latter group, without access to Internet CNN NEWSROOM, was not able to find good information resources for school projects using computers.

Internet CNN NEWSROOM generated a considerable novelty effect among student users. In their first few months of using the product, students expressed great enthusiasm about the product and displayed a sharp increase in technology usage. However, after the novelty effect wore off student interest in Internet CNN NEWSROOM and their attitudes towards technology retreated from their former high levels.

The greatest barrier to effective use of Internet CNN NEWSROOM is the lack of knowledge in using computers, the Internet, and the Internet CNN NEWSROOM interface. User training for teachers and students is a necessary prerequisite for proper use of the technology.

The teacher and students stated that the video presentation of current events was much more powerful than text in a book. However, while students expressed a great interest in using video clips from Internet CNN NEWSROOM for their research reports, most said that video was more difficult to use than text.

Users cited Internet CNN NEWSROOM's archive search capability as its single greatest benefit over the broadcast version. Other key benefits of the Internet version include the quick access to the desired content. The greatest benefit to the teacher is the ability to access all the content and accompanying material at a single Internet site.

Students said they saw benefits of using the Internet in other subjects in school due to their positive experiences with the Internet in their social studies class. Some students said the

Internet and computers did not provide enough quality information for school research. Students said that although they used the Internet in school, they used books when they wanted to "really learn" about a subject.

There is a fundamental shift in the primary use of computers by students. Students who have not used the Internet or on-line services viewed computers as having three functions – word processing, typing instruction, and game playing. On the other hand, more experienced computer users found computers useful for information retrieval and communication.

Chapter Four

Policy and Product Recommendations

4.1 INTRODUCTION

The previous two chapters have described the costs and benefits schools face in developing networking infrastructure. This chapter offers recommendations to improve the cost-benefit ratio for schools. The first section presents recommendations for regulators, legislators, and other policy makers. These policies can make a significant impact on the networking costs for schools. The second section discusses new product development recommendations for developers of networked educational services for schools. These product recommendations can guide developers to develop network-based products and services that provide significant educational benefits to schools.

4.2 POLICY RECOMMENDATIONS

This section issues four recommendations for policy makers that will minimize the costs that schools face in developing networking infrastructure.

4.2.1 Focus on Significant Cost Items

The cost for telecommunications is only a small portion of the total networking costs to schools. As described in chapter two, the cost of telecommunications lines represents only 11% of the total networking costs for baseline NII connectivity. The costs for PCs, support, and training

are much more significant. Therefore, policy makers should develop policies that concentrate on these cost items.

Chapter two developed a number of potential cost savings programs. The programs with the greatest financial impact reduced the most significant cost items – hardware, training, and support. Policy makers should take actions that will facilitate these programs:

- Free labor for installing network – State and federal officials should encourage and support grassroots volunteer programs in which technically knowledgeable volunteers help wire up schools.[25]
- Donation of PC's routers and other equipment – State and federal governments should create incentive programs for businesses (e.g., tax incentives) to donate new and used equipment to schools. It is vital that the incentives encourage donation of relatively new equipment since older equipment may have technical limitations that render it less valuable for networking schools.[26]
- Teachers trained on own time – Teachers should be given training credits or some financial compensation for spending time out of school to learn how to use computers and networks in the classroom.

Policy makers should resist the allure of focusing on lowering telecommunications costs, which represent only a small fraction of the total overall costs. Highly publicized announcements by telephone and cable companies draw attention to free and lower telecommunications rates. While low- or no-cost telecommunications reduce short-term costs, the telecommunications companies often design these programs to lock schools into a particular company and technology. Once schools are locked-in, they have less flexibility to switch to lower cost

[25] A good example is NetDay '96 in which volunteers from California helped connect schools across the state.

[26] Business donations are emphasized over individual donations since the average age of discarded equipment by individuals is much greater than that of businesses.

providers after the introductory low-cost program expires. In the long-term, total costs increase. Schools would benefit more by emphasizing the cost savings programs described above.

4.2.2 Encourage State and District Level Purchasing

Aggregating costs at the district and state levels, can significantly reduce costs for individual schools and school districts. Schools stand to save much money by pooling resources and purchasing power with other schools in the district and at the state level. When schools share a high speed data link, or support staff, the per school costs drop considerably. Schools in North Carolina and Kentucky have saved 20% - 50% by purchasing services and equipment at the state level. These volume-purchase programs should be expanded in other states and districts. State officials should develop state technology purchasing offices that will make volume purchases for most or all schools in the state.

Before implementing these programs, state officials should consider the potential drawbacks of volume purchasing. In particular, they should consider the possibility of the creation of a large, inefficient bureaucracy; conflicts with state and local procurement laws; potential political hazards; and the inability to meet the specialized needs of some school and school districts.

4.2.3 Develop Scalable Architecture

Schools should consider implementing scalable, extensible networking technology similar to models four and five from chapter two. Although these models have high per student costs, they are the only ones that are scalable for many users within a school. While models one, two, and three have lower per-student costs, these models are viable only for a small number of concurrent users. Only models four and five are viable for widespread network usage within the school.

Federal and local government officials can help schools develop plans for a scalable design by providing or encouraging the private sector to provide technical support, such as help-desks, technology guides, and technical information resources. California Department of Education (1994) and the U.S. Department of Education web site (http://www.ed.gov/) are examples of government resources that help schools learn how to design scalable, low-cost networking infrastructure.

4.2.4 Support Initial Funding Barrier

The initial investment cost is the most significant financial hurdle facing schools in developing network infrastructure. Local, state, and federal budget officials should be more flexible in their school budget allocation programs to allow schools to make a high one-time investment in networking technology. Additionally, schools should be given flexibility to amortize initial costs, in order to spread out the burden over a number of years.

4.3 NEW PRODUCT RECOMMENDATIONS

Urban and Hauser (1993) describes the process of "information acceleration" in which user feedback from pilot programs provides information about the product characteristics desired by users. Evaluation of Internet CNN NEWSROOM in chapter three described the feedback received from the pilot user group of the service – the students and teacher at Lexington High School. Their feedback provides valuable information about the important features in new Internet-based multimedia information products and services. This section uses this information to issue recommendations to software designers and developers concerning the product concept, user interface, and features of new networked educational products and services.

4.3.1 New Market Opportunity

Feedback from the study group at Lexington High School indicated that the emergence of the Internet and commercial on-line services have opened up a new market for educational products:

- Shifting user applications – New educational software should reflect the shift in thinking about the use of computers. Students are increasingly viewing computers and the Internet as research tools rather than simply typing or game machines. Therefore, there will be greater opportunity to develop new products with quality educational content and powerful research capabilities.
- Positive system feedback – Currently, few networked (as opposed to stand-alone,) educational products exist for use in the classroom. Because of the dearth of educational products and services, the Internet and computer networking is not widely viewed as a necessary classroom tool. When innovative Internet-based products begin to emerge in the marketplace, teachers will see that computer networks can be valuable in daily instruction. Increased awareness will lead to increased demand, thereby causing a positive feedback loop as companies develop new products to meet demand. Product developers must understand these market dynamics and be ready for quick increases in demand.

4.3.2 User Interface

Feedback from users indicates that product interface design is important in their experiences with the product. They desire a product that is easy-to-use, usable by students, and accompanied by good technical support:

- User-friendly interface – Products should be user-friendly and not technically complex. Many students in Lexington did not use Internet CNN NEWSROOM because they found the interface confusing.
- Student-controllable system – Students said they liked that they were in control of Internet CNN NEWSROOM. Therefore, it is important that products be developed that are to be

used by the students themselves and not just by the teacher. Students make greater use of the product when they can take ownership of it.

- Reliable technical support – Students and the teacher complained of technical problems with the product. If technical support were better, user experiences would likely have been more positive. Therefore, in future product development, technical support should be an integral part of the augmented product.

4.3.3 Product Features

Information from the students in Lexington indicates that users covet certain features of Internet CNN NEWSROOM. Their feedback indicates that users desire new educational products that contain rich multimedia content, powerful search tools, up-to-date information, and technical reliability:

- Multimedia content – The teacher and many students liked the graphical, audio, and video information in Internet CNN NEWSROOM. Many students also said that the text was the most useful part of the service. Therefore, new educational products should include multimedia information along with text-based information. The multimedia information, which students say is more stimulating and memorable, complements the more functional text-based information.
- Powerful search capabilities – Students who knew how to use Internet CNN NEWSROOM's search tool said it was an indispensable feature of the product. It addressed the student need for specific and relevant information. New educational products that provide research content should contain a search tool to maximize value to the user.
- Up-to-date information – One key advantage of using the Internet as a channel for new products and services is the ability to provide up-to-date information. Students complained that other information resources were old, inaccessible, and out-of-date. Computer networking provides the opportunity to provide schools with information that is current and relevant.

- Technical reliability – Technical bugs are still prominent in software products such as Internet CNN NEWSROOM. There was some mild disappointment with Internet CNN NEWSROOM because it did not always work. A new product will have a much greater impact on users if it is technically reliable.

4.4 SUMMARY

By the end of the century, computer networks will become a standard technology in K-12 schools. Given current trends, it is certain that a significant number of classrooms in every school will have access to a computer network by the year 2000. However, the success of networking technology in facilitating educational reform and improving schools is not at all certain. In these next few years, two elements are critical in ensuring a productive role for networking in schools – constructive policies that help schools connect properly at minimal cost and quality networked educational products that are effective educational tools.

If government and school officials develop policies that focus on the significant cost items, encourage state and district level purchasing, encourage development of scalable architecture and technologies, and support the considerable initial funding barriers, schools will successfully implement networking with the least possible drain on financial resources. Similarly, if software developers design and create new educational products with an easy and powerful user interface that take advantage of networking capabilities, then teachers will begin to regard computer networks as essential tools in the classroom. If these two conditions are met, educational technology may begin to fulfill some of the grand expectations that have accompanied it since the use of surveyor's equipment in schools in the 1920s through the use of the Internet in the 1990s.

Appendix One

Internet CNN NEWSROOM Home Page

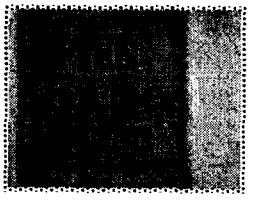
Tuesday, March 26, 1996

View today's entire CNN Newsroom Guide

View today's entire program.

(3:05) [mpeg] (cc)

Consumers boycott British beef products after "mad cow disease" disclosure.



(:30) [mpeg] (cc)

NATO EXPANDS ROLE IN BOSNIA ...

CAMPAIGN USA '96 (:40) [mpeg] (cc)

AFL-CIO endorses President Clinton's candidacy.